

SCIENTIFIC PROGRAM

MONDAY, APRIL 25, 2022

AURELIUS HALL

12:45–17:10 PLENARY SESSION

Chairpersons: Lederer J., Lubojacký J.

12:45–13:00 Opening

Lederer J., president of the ČSPCH

13:00–13:15 Viktor Ettel Award

Lederer J., president of the ČSPCH

13:15–13:45

1. Development trends of the ORLEN Unipetrol Group

Assoc. Prof. Ing. Tomáš Herink, Ph.D., ORLEN Unipetrol

13:45–14:15

2. Hydrogen strategy of the Czech Republic

Ing. Petr Mervart, Commissioner for Hydrogen Strategy of the Ministry for Industry and Trade

14:15–14:45

3. Local transport from the perspective of Green Deal

Prof. Ing. Jan Macek, DrSc., CTU in Prague

14:45–15:10 Coffee break

15:10–15:40

4. Hydrogen in the Czech Republic and its role in the future

Prof. Dr. Ing. Karel Bouzek, UCT Prague

15:40–16:10

5. Decarbonisation options – hydrogen in chemistry and energy

Prof. Ing. Kamil Wichterle, Ph.D., VŠB TU Ostrava

16:10–16:40

6. Current activities of the Association of the Chemical Industry of the Czech Republic

Ing. Ivan Souček, CSc., SCHP

16:40–17:10

7. Mathematical modelling of chemical processes

Prof. RNDr. Ivo Nezbeda, DrSc., Jan Evangelista Purkyně University, Ústí nad Labem

MONDAY, APRIL 25, 2022

FOYER + AURELIUS HALL

17:10–22:00 POSTER SESSION, WELCOME DRINK

Chairperson: Hanika J., Prague

We ask the authors to be present at their posters at least from 19:00 to 20:00.
The best poster will be awarded in Aurelius Hall at 21:00.

TUESDAY, APRIL, 2022

CABERNET HALL

8:05–14:55 INORGANIC TECHNOLOGY

Chairperson: Bouzek K., Prague

8:05–8:30

IT1 Study of stability of the platinum and platinum alloy catalyst for PEM fuel cells

Mališ J., Čobejová O., Jedlička T., Paidar M., Bouzek K., Prague

8:30–8:55

IT2 Gas diffusion electrode hydrophobicity: A factor influencing the efficiency of alkaline fuel cell

Zejmon M., Paidar M., Bouzek K., Prague

8:55–9:20

IT3 Ni-Fe-W Catalyst for alkaline water electrolysis

Záchenská J., Zemanová M., Bratislava

9:20–9:45

IT4 Influence of the catalyst particles size and crystalline phase on electrocatalytical performance of $\text{Co}_0.83\text{Ni}_0.17\text{Se}_2$ for oxygen reduction reaction in alkaline fuel cell

Hronová D., Hnát J., Bouzek K., Prague

9:45–10:10

IT5 Model of alkaline water electrolysis in connection with renewable sources of energy

Denk K., Paidar M., Hnát J., Bouzek K., Prague

10:10–10:30 Coffee break

10:30–10:55

IT6 Differences in composition of naples yellow and synthesis of its main phases

Dohnalová Ž.¹, Luxová J.¹, Šulcová P.¹, Šefců R.², Antušková V.²

¹Pardubice, ²Prague

10:55–11:20

IT7 19th century pigment SrCrO₄ – synthesis and characterisation

Fejk J., Dohnalová Ž., Pardubice

11:20–11:45

IT8 Synthesis and characterization of perovskite pigments via different methods

Hroch J., Dohnalová Ž., Pardubice

11:45–12:10

IT9 Laser direct writing into GE-AS-S glassy system

Samsonova E., Kutálek P., Knotek P., Černošková E., Schwarz J., Pardubice

12:10–13:40 Lunch

13:40–14:05

IT10 Increasing the stability of ferrate (VI) by encapsulation

Benköová M., Mališová E., Híveš J., Bratislava

14:05–14:30

IT11 Modelling of transport of deacidification components in an acid paper

Danielik V., Králik M., Ambrová M., Jurišová J., Fellner P., Vizárová K., Bratislava

14:30–14:55

IT12 Applicability of Carman-Kozeny equation in prediction of GDL permeability

Prokop M., Drakselová M., Bouzek K., Prague

14:55–15:15 Coffee break

15:15–18:10 MATERIALS ENGINEERING

Chairperson: Novák P., Prague

15:15–15:40

MI1 Preparation and application of new N-coordinated organogallium compounds

Milasheuskaya Y., Jambor R., Němec P., Bouška M., Pardubice

15:40–16:05

MI2 Antibacterial activity of silver nanoparticles grafted onto plasma treated PET: effect of preparation method and shape of NPs

Řezníčková A., Nguyenová H.Y., Lacmanová V., Michalcová A., Průša F., Vokatá B., Švorčík V., Slepíčka P., Prague

16:05–16:30

MI3 New alloys from the sea

Novák P., Tsepeleva A., Michalcová A., Msallamová Š., Vlášek J., Benediktová D., Kopeček J., Prague

16:30–16:55

MI4 High-entropy alloys – properties as a result of their composition and preparation route

Průša F., Strakošová A., Kratochvíl P., Thürlová H., Prague

16:55–17:20

MI5 Structure modification of aluminium alloys with a natural combination of dopants using rapid solidification technology

Tsepeleva A., Novák P., Prague

17:20–17:45

MI6 Magnesium alloys with high ignition temperature for the aerospace industry

Hosová K., Kubásek J., Vojtěch D., Prague

17:45–18:10

MI7 Copper-metaphosphate glasses modified by zinc or calcium

Brázdová S., Pardubice

TUESDAY, APRIL, 2022

PÁLAVA HALL

8:30–12:10

PHARMACEUTICAL TECHNOLOGY

Chairperson: Kratochvíl B., Prague

8:30–8:55

SP1 Mechanisms of tablet disintegration and drug release – towards the deeper understanding of the dissolution process

Zámstný P., Bittner R., Dufková K., Römerová S., Prague

8:50–9:20

SP2 The importance of surface free energy in the formulation of solid dispersions

Školáková T., Smržová D., Pekárek T., Zámstný P., Prague

9:20–9:45

SP3 Technology transfer for the dry granulation process aiming at keeping identical ribbon properties

Petr J., Zámstný P., Stasiak P., Prague

8:45–10:10

SP4 Effect of the mixing strategy on the uniformity of powder mixtures for direct compression

Römerová S., Novák D., Zámstný P., Prague

10:10–10:30

Coffee break

10:30–10:55

SP5 Is crystallization a black box?

Gabriel R., Bártová A., Opava

10:55–11:20

SP6 Process analytical technology for crystallization – all in one

Bártová A.^{1,2}, Gabriel R.¹, Šahnić D.³, ¹Opava, ²Olomouc, ³Zagreb

11:30–11:55 **Poster No. P115**

SP7—Corticosteroid-loaded PLGA nanospheres for macrophages targeting: A tool for inflammation management

Boltnarová, B., Kubačková, J., Holas, O., Pávek, P., Hradec Králové

11:20–11:45

SP8 Application of fused deposition modeling in preparation of carbohydrate-based drug forms

Matzick K., Slezáková B., Macháčková J., Komersová A., Pardubice

12:10–13:40

Lunch

11:45–12:10

CHEMICAL PROCESSES AND DEVICES

13:40–18:10

OIL, PETROCHEMICALS, BIOFUELS

Chairperson: Kittel H., Prague

13:40–14:05

OP1 Integrated production of olefins and jet fuel from waste polypropylene

Ondrovič T., Mikulec J., Slezáčková M., Peller A., Hájeková E., Bratislava

14:05–14:30

OP2 Chemical recycling of polyolefins: A case study on LDPE conversion into light olefins and aromatics

Inayat A.¹, Inayat A.², Schwieger W.², Lestinsky P.¹

¹Ostrava, ²Erlangen, Nuremberg

14:30–14:55

OP3 Influence of oil addition from plastic depolymerization on product yield structure in fluid catalytic cracking

Pšenička M., Vráblik A., Vondrášková K., Ústí nad Labem

14:55–15:20

OP4 Comparative study of acidic heterogeneous catalysts used for esterification of free fatty acids to FAME/FAEE

Kaule P., Nguyen Thi H.T., Polák L., Čermák J., Šiřha V., Ústí nad Labem

15:20–15:40

Coffee break

15:40–16:05

OP5 Epoxidation of oils and esters of higher fatty acids – monitoring of reaction

Hájek M., Kocián D., Straková A., Douda M., Bělava O., Pardubice

16:05–16:30

OP6 The influence of residue sodium ions and different anions in mixed oxides on transesterification of vegetable oils

Kocián D.¹, Hájek M.¹, Malina J.¹, Frolich K.¹, Mališová M.²

¹Pardubice, ²Bratislava

16:30–16:55

OP7 Estimation of trace elements in industrial wastewater at an oil refinery in Yemen (Aden refinery)

Al Sabbari A.S., Republic of Jemen

16:55–17:20

OP8 Quality control of diesel, gasoline, jet fuel and lubricants with laboratory and process near infrared spectroscopy

*Libánský M., Kadenkin A., Metrohm AG spectroscopy competence center²
1Prague, 2Herisau, Switzerland*

17:20–17:45

OP9 Environmentally acceptable lubricants for maritime applications

*Stavárek P.¹, Večeř M.², Zelenka L.³, Armada S.⁴, Stenerud G.⁴, Bernat S.⁴
1Prague, 2Ostrava, 3Jersin, 4Trondheim, Norway*

17:45–18:10

OP10 The future of jet fuel as an important refinery product

Kittel H., Horský J., Prague

TUESDAY, APRIL 26, 2022

SAUVIGNON HALL

8:30–12:10

**CESTOVNÍ MAPA VÝVOJE CHEMICKÉHO PRŮMYSLU V ČR
VE SVĚTLE EGD**

Chairperson: Novák L., Prague

Session is in Czech language only

Dovolujeme si Vás upozornit, že na našich akcích pořizujeme záznamy a fotodokumentaci pro účely prezentace a archivace. Sekce Cestovní mapa vývoje chemického průmyslu v ČR ve světle evropské politiky Green Deal je realizovaná v rámci projektu CZ.01.1.02/0.0/0.0/17_105/0018878 „Technologická platforma pro trvale udržitelnou chemii IV“, podporovaného v rámci OPPIK, programu Spolupráce – Technologické platformy.

8:30–8:55

ZD1 SUSCHEM CZ a Green Deal – aktivity

Ladislav Novák, SUSCHEM CZ

8:55–9:20

ZD2 Pohled BASF na Strategii pro udržitelnost v oblasti chemických látek

Boris Gaspar, zástupce BASF SE a BASF spol.s.r.o.

9:20–9:45

ZD3 EGD a související legislativa, pohled MEP

Ondřej Knotek, Evropský parlament

9:45–10:10

ZD4 Strategie pro udržitelnost v oblasti chemických látek – vliv na vývoj legislativy (EU a ČR)

Karel Bláha, Ministerstvo životního prostředí

10:10–10:30

Coffee break

10:30–10:55

ZD5 Novinky v EGD z pohledu MPO

Pavĺina Kulhánkuvá, Ministerstvo prŕmýslu a obchodu

10:55–11:20

ZD6 Chemická recyklace plastŕ ve svĕtle EGD

Jiří Reiss, ĀTP Plasty

11:20–11:45

ZD7 Implementace Strategie pro udržitelnost v oblasti chemických látek v roce 2021

Ivan Souĕek, Svaz chemického prŕmýslu ĀR

11:45–12:00

ZD8 Nákladuvá cena vodíku z OZE

Martin Šilhan, SUSCHEM CZ, Centrum výzkumu Řeř

12:00–12:30

ZD9 Připravuvaná Strategická výzkumná agenda

Antonín Mlĕoch, SUSCHEM CZ, Centrum výzkumu Řeř

12:30–13:40 Lunch

13:40–18:10 ECONOMICS OF CHEMICAL INDUSTRY

Chairperson: Souĕek I., Prague

13:40–14:05

E1 Impact of energy price development on chemical industry

Souĕek I., Suchý J., Prague

14:05–14:30

E2 Modelling steam methane reformer operation with hydrogen-enriched feedstock

Hoppej, D., Variny M., Kondáš R., Bratislava

14:30–14:55

E3 Use of digitalization in chemical enterprises

Vávra J., Spáĕil P., Bakesš O., Pardubice

14:55–15:20

E4 Changes in managing human resources in the post covid era in the Czech Republic

Charvátuvá D., Botek M., Prague

15:20–15:40 Coffee break

15:40–16:05

E5 Mathematical modeling of heat and mass transfer in a rotary kiln

*Kozakovíc M.^{1,3}, Cada J.¹, Kokavcová A.¹, Havlica J.^{1,2}, Huchet F.³
¹Ústí nad Labem, ²Prague, ³Bouguenais, France*

16:05–16:30

E6 Importance of an eco-label for the customer

Branská L.¹, Paták M.¹, Pecinová Z.¹, Kocmanova A.², ¹Pardubice, ²Brno

16:30–16:55

E7 The accomplishment of the digital well-being in companies

Botek M., Charvátová D., Dvořáková Z., Prague

16:55–17:20

E8 Decent work in the green economy

Dvorakova, Z.¹, Polents, I.², ¹Prague, ²Pilsen

17:20–17:45

E9 Productive economic view of the bakery industry

Strachotová D., Kutnohorská O., Prague

17:45–18:10

E10 Consumer behaviour in the German bread market

Kutnohorská O., Strachotová D., Prague

TUESDAY, APRIL 26, 2022

TRAMÍN HALL

8:30–12:10

Zelená dohoda a recyklace plastů

Chairperson: Reiss J., Prague

8:30–8:55

PL1 Chemická recyklace

Jiří Reiss, ČTP Plasty

8:55–9:20

PL2 Registrace produktů chemické recyklace

Pavčina Kulhánková, MPO

9:20–9:45

PL3 Systém sběru a recyklace odpadních plastů

David Lukáč, EKO-KOM

9:45–10:10

PL4 Plazmové zplyňování odpadů

Petr Břenek, PGP Terminal, a.s.

10:10–10:30 Coffee break

10:30–10:55

PL5 Termochemická recyklace plastového odpadu

Jaroslav Pátek, ENRESS

10:55–11:20

PL6 Termolýzní zpracování uhlíkatých odpadů ve světle cirkulární ekonomiky

Karel Prokeš, Agmeco LT s.r.o.

11:20–11:45

PL7 OPTIMUS – efektivní recyklace plastů

Eduard Wipplinger, Plastoil

11:45–12:10

PL8 Chemická recyklace

Pavel Kuráň, Pavel Krystyník, Jan Hubáček, UJEP/Orlen UniCRE

12:10–13:40 Lunch

13:40–18:10 POLYMERS, COMPOSITES

Chairperson: Kůta A., Prague

13:40–14:05

PC1 Goals and challenges of rubber sustainability

Brejcha J.^{1,2}, Hrdlička Z.², Krmela J.², Beneš L.², Hittlová M.²

¹Ústí nad Labem, ²Prague

14:05–14:30

PC2 Alternative bio-based plasticizers for rubber industry

Hrdlička Z.¹, Brejcha J.^{1,2}, Hittlová M.¹, Alexová C.¹, ¹Prague, ²Ústí nad Labem

14:30–14:55

PC3 The influence of mastication and ageing on gel content of natural rubber

Čadek D., Foitlová A., Kůta A., Prague

14:55–15:20

PC4 Influence of processing methods on the behavior of waste rubber powder-modified rubber matrix

Hittlová M.¹, Hrdlička Z.¹, Brejcha J.^{1,2}, Ustinov O.¹, Pradas A.¹

¹Prague, ²Ústí nad Labem

15:20–15:40 Coffee break

15:40–16:05

PC5 Materials recycling in the production of porous polymeric molds

Pokorný J.¹, Motyčková J.¹, Riedelová K.¹, Sedlářová I.², Urbánek J.¹,

Blažek Z.³, ¹Kralupy nad Vltavou, ²Prague, ³Svitavy

16:05–16:30

PC6 Branched polyolefins as polymer specialties

Kotýza O., Sokolohorský A., Šofrová V., Musil V., Merna J., Prague

16:30–16:55

PC7 Organic photoactive materials for polymeric matrixes

Kubáč L.¹, Kořínková R.¹, Černý J.¹, Trousil V.¹, Pummerová M.², Zetková K.³

¹Rybitví, ²Zlín, ³Pardubice

16:55–17:20

PC8 Catalytic activity of N-donor stabilized tin(II) cations in ROP of L-lactide

Novák M., Milasheuskaya Y., Turek J., Růžičková Z., Podzimek Š., Jambor R., Pardubice

17:20–17:45

PC9 Preparation of strong cation exchange resin on the base of styrene-divinylbenzene copolymer for water treatment

Skálová H., Jelínek L., Štěpánková Z., Prague

17:45–18:10

PC10 Absorption-desorption isotherms as a tool for estimation of conditions for after-treatment of deacidified cellulosic objects

Králík M., Vizárová K., Vajová I., Tiňo R., Guzikiwiczová E., Bratislava

WEDNESDAY, APRIL 27, 2022

CABERNET HALL

8:30–11:45

ORGANIC TECHNOLOGY

Chairperson: Zámostný P., Prague

8:30–8:55

OT1 Development of new technology for caprolactam purification

Trejbal J., Zapletal M., Prague

8:55–9:20

OT2 Available methods enabling chemical utilization of anthropogenic CO₂ for production of cyclic carbonates using homogeneous non-metallic catalysts

Weidlich T., Kamenická B., Pardubice

9:20–9:45

OT3 Salts of N-heterocyclic compounds as catalysts in cyclic carbonates production

Zitová K., Zelinková K., Vyskočilová E., Prague

9:45–10:10

OT4 Tezacaftor – synthesis optimization of the first intermediates

Hašková L., Máčal L., Vyskočilová E., Ridvan L., Prague

10:10–10:35

OT5 A method for pre-treatment of waste plastic pyrolysis oil allowing the evaluation by pyrolysis gas chromatography

Le T.A., Karaba A., Patera J., Zámostný P., Prague

10:35–10:55 Coffee break

10:55–11:20

OT6 Poem and reality

Hrdina R., Burgert L., Kalendová A., Machalický O., Pardubice

11:20–11:45

OT7 Hydrogenation of 2-phenylacrylic acid

Kotova M., Bachmaier J., Vyskočilová E., Červený L., Prague

11:45

Lunch

WEDNESDAY, APRIL 27, 2022

PÁLAVA HALL

8:55–12:35

BIOTECHNOLOGY AND BIORAFINERY

Chairpersons: Patáková P., Branská B., Prague

8:55–9:20

B11 The fungus monascus, production of secondary metabolites and their use

Husáková M., Patáková P., Prague

9:20–9:45

B12 Stability and antioxidant activity of Monascus pigments in complex red yeast rice extracts

Husáková M., Patáková P., Prague

9:45–10:10

B13 Genomic and functional analysis of polyhydroxyalkanoates producer *Rhodospirillum rubrum* DSM 467

Jureckova K., Nykrynova M., Slaninova E., Bezdicek M., Obruca S., Skutkova H., Sedlar K., Brno

10:10–10:35

B14 Diversity of schlegelella thermodepolymerans revealed with nanopore sequencing

Sedlar K., Musilova J., Kourilova X., Bezdicek M., Obruca S., Brno

10:35–10:55

Coffee break

10:55–11:20

B15 Processing of animal by-products for biotechnological production of value-added commodities

Branska B., Solansky M., Patakova P., Melzoch K., Prague

11:20–11:45

B106 Optimization of cultivations of carotenogenic yeasts on poultry waste substrates

Holub J., Chujanov O., Sztokowski M., Šimanský S., Schildová V., Dzurická L., Márová I., Brno

11:45–12:10

B17 Optimization of extraction, purification and stabilisation of biologically active compounds from yeast and microalgae biomass

Šimanský S., Sztokowski M., Holub J., Obračaj H., Dzurická L., Schildová V., Márová I., Brno

12:10–12:35

B18 Study of polyhydroxyalkanoate production by new thermophilic isolates of the genus *aneurinibacillus*

Pernicová I., Kouřilová X., Řeháková V., Sedláček P., Obruča S., Brno

12:35

Lunch

WEDNESDAY, APRIL 27, 2022

SAUVIGNON HALL

8:30–10:35

WASTE TREATMENT, WATER PROTECTION

Chairperson: Obalová L., Ostrava

8:30–8:55

WT1 Removal of environmentally harmful pharmaceuticals via adsorption on activated carbon

Pavůvková D., Fašková L., Mališová E., Gál M., Híveš J., Bratislava

8:55–9:20

WT2 Ferrates as a degradation tool for pollutants

Fašková L., Pavůvková D., Mališová E., Štibrányi L., Híveš J., Bratislava

9:20–9:45

WT3 Microplastics – fast and reliable identification using correlative spectro-microscopy

Danylo I., Marvan P., Sofer Z., Kofroňová J., Vurm R., Veselý M., Prague

9:45–10:10

WT4 Use of transition metal oxides as catalysts in AOPs for water treatment

Mašín P.¹, Kroužek J.², Hendrych J.², Tišler Z.³, ¹Dřetovice, ²Prague, ³Litvínov

10:10–10:35

WT5 ENREGAT's large research infrastructure has a track record of success

Grycová B., Obalová L., Ostrava

10:35–10:55

Coffee break

10:55–11:45

AIR PROTECTION, TECHNOLOGIES FOR SOIL DECONTAMINATION

Chairperson: Kočí K., Ostrava

10:55–11:20

AP1 New non-porous membranes for flue gas purification

Stanovsky P.¹, Zitkova A.¹, Gándara B.C.², McKeown N.², Jansen J.C.³, Friess K.⁴, Izak P.¹, ¹Prague, ²Edinburgh, Midlothian, UK, ³Rende, Italy

11:20–11:45

AP2 Advanced mixed metal oxides in catalytic oxidation of VOCs in air

Kroužek J.¹, Rippelová V.¹, Hrdličková P.¹, Híbschová J.¹, Solodkov M.¹, Tišler Z.², ¹Prague, ²Litvínov

11:45–12:10 **CHEMICAL PROCESSES AND DEVICES**

Chairperson: Jirout T., Prague

**MOVED TO TUESDAY,
PÁLAVA HALL**

11:45–12:10

CHP1 Economic aspects of heat pump integration in thermally coupled hybrid separation

Šulgan B., Labovská Z., Bratislava

WEDNESDAY, APRIL 27, 2022

TRAMÍN HALL

8:30–10:10 **GAS, COAL, FUEL**

Chairperson: Lederer J., Litvínov

8:30–8:55

GC1 CO-firing multiple fuels in Vojany thermal power plant

Variny M.¹, Stričík M.², Štofová L.², ¹Bratislava, ²Košice

8:55–9:20

GC2 CO-combustion of sewage sludge in the heating plant

Hlaváček O., Šrámek V., Prague

9:20–9:45

GC3 C₃MR LNG process optimization: An enviro-economic study

Furda P., Variny M., Bratislava

9:45–10:10

GC4 C₃MR LNG process optimization: Parallel genetic algorithm interface

Furda P., Variny M., Bratislava

10:35–10:55 **Coffee break**